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10/644,914	08/21/2003	Takahiro Ohkuma	U1927.0010	6478

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EXAMINER
CURS, NATHAN M

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _13 December 2007_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-7,9-18,20-28 and 30_ is/are rejected.

7) ☒ Claim(s) _8,19 and 29_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _21 August 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _7/07_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claim 15 is are objected to because of the following informalities:

Claim 15 in line 3 strikes through the newly added phrase "an identifier". It appears the

Applicant intended to keep the new phase; therefore, it should be re-added to the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-6, 9-17, 20-27 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable

over Callegati et al. ("Callegati") (*Exploitation of DWDM for optical packet switching with quality

of service guarantees*; Callegati et al.; Selected Areas in Communications, IEEE Journal on;

Volume 20, Issue 1, Jan. 2002; Pages: 190-201).

Regarding claims 1, 11, 13, 22 and 23, Callegati discloses a data multiplexing network

system, wavelength multiplexer and method including: a wavelength division multiplexing

network (page 190, section I); a first wavelength multiplexing function unit for setting a plurality

of different wavelengths which correspond to a plurality of different service classes, respectively

(fig. 1 and page 195, section V, first three paragraphs), and for mapping each of a plurality of

packets into a correspondent-wavelength corresponding to a particular one of the plurality of

different service classes to which said packet belongs (page 191, col. 1, third full paragraph and

section III, first paragraph, and page 195, section V, first three paragraphs), and for multiplexing

said correspondent-wavelengths for said plurality of different service classes for a data

transmission through said wavelength division multiplexing network (fig. 1); and a second

wavelength multiplexing function unit for receiving each correspondent-wavelength and for

fetching a packet therefrom (fig. 1 and page 190, section I and pages 191-193, section III, first

paragraph through sub-section A, where a network comprising plural optical packet switches

like that of fig. 1 will have a second optical switch of the fig. 1 type downstream from a first

optical packet switch of the fig. 1 type). Callegati does not explicitly mention that the

wavelength mapping of packets by service class occurs at the entrance to the WDM network.

However, Callegati discloses that the purpose of his WDM switching fabric that performs

wavelength mapping according to service class is to resolve contention and relieve congestion

(page 190, col. 2, last five lines of the first partial paragraph). Therefore, it would have been

obvious to one of ordinary skill in the art at the time of the invention to use the WDM switch

fabric disclosed by Callegati at the entrances to the WDM network where packets are first

accepted, specifically modifying the generic switch configuration disclosed in fig. 1 such that the

switching fabric receives packets on the input lines directly, without the initial WDM

demultiplexing of the generic fig. 1 switch configuration (the input side wavelength

demultiplexers do not play a role in the logical behavior of the switching fabric itself as disclosed

on page 191, section III, second paragraph), in order to resolve contention and relieve

congestion at the beginning of WDM network transmission and avoid waiting until contention

and/or congestion accumulates further along in the network.

Regarding claims 2 and 12, Callegati the data multiplexing network system and

wavelength multiplexer as claimed in claims 1 and 11, wherein said first wavelength multiplexing

function unit further includes: a plurality of ports for receiving said plurality of packets into the

wavelength division multiplexing network (the inputs to the switching fabric of fig. 1 for the

switch fabric at the entrance to the WDM network, as described above) and a first packet

interface unit for receiving said plurality of packets from said plurality of ports (fig. 1 and fig. 2,

the wavelength conversion stage and pages 191-193, section III, first paragraph through sub-

section A); a first service class specifying unit for receiving said plurality of packets from said

first packet interface unit and for specifying the service class to which each of said plurality of

packets belongs and a first wavelength mapping unit for receiving said plurality of packets from

said first service class specifying unit and for mapping each of said plurality of packets at a

correspondent-wavelength corresponding to the specified service class (fig. 2 and pages 191-

193, section III, and page 195, section V); and a first wavelength division multiplexing network

interface for receiving said correspondent-wavelengths from said first wavelength mapping unit

and for multiplexing said correspondent-wavelengths (fig. 1, the output multiplexers).

Regarding claims 3, 14 and 24, Callegati discloses the data multiplexing network

system, wavelength multiplexer and method as claimed in claims 2, 13 and 23 wherein said

second wavelength multiplexing function unit further includes: a second wavelength division

multiplexing network interface for demultiplexing a multiplexed signal transmitted through said

wavelength division multiplexing network into said correspondent-wavelengths (fig. 1, as

applicable to the optical packet switch downstream from the network entrance switch fabric); a

second wavelength mapping unit for receiving said correspondent-wavelengths from said

second wavelength division multiplexing network interface and for fetching said packets from

said correspondent-wavelengths (fig. 1 and page 191, col. 1, third full paragraph and section III,

first paragraph, and page 195, section V, first three paragraphs); a second service class

specifying unit for receiving said packets from said second wavelength mapping unit and for

specifying an appropriate output port for each of said packets, and for adding output port

information to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, and fig. 2 and pages 191-193, section III, first paragraph through sub-section A and page 195, section V); and a second packet interface unit for receiving each packet with said output port information and for sending said packet to the one of said plurality of ports identified by said output port information (fig. 1 and page 191, section III, first paragraph, as applicable to the optical packet switch downstream from the entrance switch fabric).

Regarding claims 4, 15 and 25, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 3, 14 and 24, wherein said first service class specifying unit adds an identifier to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, as applicable to the network entrance switch fabric), and wherein said second service class specifying unit also specifies said output port based on said output port information of each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, as applicable to the optical packet switch downstream from the network entrance switch fabric).

Regarding claim 5, 16 and 26, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 3, 14 and 24, wherein said second service class specifying unit also specifies said output port based on packet specifying information included in each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, and page 191, col. 1, third full paragraph and pages 193-194, section III.D, where the output port is based on the final destination of the packet, where the destination address is in the header).

Regarding claim 6, 17 and 27, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 5, 16 and 26, wherein said packet specifying information comprises a packet header included in each packet (page 191, col. 1, third full paragraph).

Regarding claim 9, 20 and 30, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 1, 11 and 22 wherein said plurality of different service classes include a best effort class and a perfect band guarantee class (page 195, section V, where the class "high priority in profile traffic" reads on "perfect band guarantee class").

Regarding claim 10 and 21, Callegati discloses the data multiplexing network system and wavelength multiplexer as claimed in claims 1 and 11, wherein at least one of said first and second wavelength multiplexing function units further includes a shaper for controlling packet traffics in a plurality of wavelength bands (page 195, section V).

4.   Claims 7, 18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callegati (*Exploitation of DWDM for optical packet switching with quality of service guarantees*; Callegati et al.; Selected Areas in Communications, IEEE Journal on; Volume 20, Issue 1, Jan. 2002; Pages: 190-201) in view of Lemieux et al. ("Lemieux") (US Patent Application Publication No. 2004/0006613).

Regarding claims 7, 18 and 28, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 2, 12 and 22, and discloses that said first service class specifying unit adds said output port information to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, as applicable to the network entrance switch fabric) and discloses that the routing

function is performed on the basis of Internet routing (page 193, section D, first paragraph), but does not disclose that said first service class specifying unit further includes: a service class-correspondent table for defining correspondences between said service classes and said plurality of ports, and wherein said first service class specifying unit uses said service class-correspondent table, based on said input port information, so as to specify the service class corresponding to each port. Lemieux discloses Internet routing algorithm for routing packets through nodes using a port table that associates port information with packet service classes (fig. 8 and paragraphs 0083-0085). It would have been obvious to one of ordinary skill in the art at the time of the invention to use an Internet routing algorithm, and corresponding port table associated with service classes, for the routing function in Callegati, to provide the benefit of flexible routing with reduced processing pressure for the nodes, as taught by Lemieux (paragraph 0083).

Allowable Subject Matter

5.	Claims 8, 19 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6.	Applicant's arguments filed 13 December 2007 have been fully considered but they are not persuasive.

	The Applicant argues that Callegati is describing routing *within* an optical WDM, as opposed to routing at the *entrance* to the WDM network. However, it would have been obvious

to one of ordinary skill in the art at the time of the invention to use the routing of Callegati at the

entrance to the WDM network as well, as described above for claims 1, 11, 13, 22 and 23.

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant

is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Conclusion

8.   Any inquiry concerning this communication from the examiner should be directed to N.

Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on

M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the

organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pairdirect.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NMC

2/22/08

/Jason Chan/
Supervisory Patent Examiner, Art Unit 2613